REMARKS

This is in response to the Office Action dated December 13, 2007.

Claims 1, 4-12 and 15 are pending in the present Office Action. Claims 1 and 10 are independent.

Claim 1 stands rejected under 35 U.S.C. 103(a) as being allegedly obvious over Applicant's Alleged Prior Art ("APA") (Figures 14-16) in view of Lee (U.S. Pub. 2004/0090564). This Section 103(a) rejection is respectfully traversed.

Claim 1 requires that "said protective film is an amorphous conductive oxide, and said amorphous conductive oxide is an oxide containing indium oxide and zinc oxide." The cited art fails to disclose or suggest these features. As will be explained below, both cited references fail to disclose or suggest the "amorphous" feature of claim 1 (thus, even the alleged combination fails to meet claim 1 in this respect), and the alleged combination with respect to the IZO feature is improper.

The alleged APA discloses a drain electrode coated with ITO. The Examiner cites to Lee and apparently contends that it would have been obvious to have replaced the ITO with IZO in order to meet claim 1. However, Lee does not teach or suggest using IZO to coat a drain electrode. Lee uses Cr or Mo for the gate and data lines. Moreover, Lee teaches to use ITO or IZO for the transparent pixel electrode only "**if** they are formed separately from the drain electrode" (see Lee at [0072]). Thus, Lee teaches that IZO should not be used in connection with the drain electrode, thereby teaching directly away from the invention of claim 1 and the alleged modification made by the Examiner. There is nothing in the art of record which teaches or suggests coating a metal drain electrode with IZO as alleged in the Office Action. Hindsight is not permitted.

According to example non-limiting embodiments of the present invention, as shown in Figure 3 for example, the drain electrode 26 includes a laminated structure of a metal film (e.g. Mo) 42 and a protective film (e.g. IZO) 44. In particular, the etching rate of the metal film 42 may be almost equal to that of the protective film 44; therefore, the metal film 42 and the protective film 44 may be formed by simultaneously etching the metal film 42 and the protective film 44. Moreover, the etching rate of the protective film 44 may be almost zero with respect to an etching (e.g., second etching) for forming the contact hold 50 in the insulation film 52 (e.g., see page 23, lines 7-23 and page 27, line 1, page 28, line 18). Therefore, a part of the drain electrode is not removed by the second etching in example embodiments of this invention.

With reference to Figure 7A of Lee, Lee merely discloses that the pixel electrodes 182, 183 and the connecting line 181 can be a transparent conductive material made of ITO or IZO if they are formed separately from the drain electrode 163 (see [0072] of Lee). However, Lee does not teach or suggest that the drain electrode can be a transparent conductive material made of ITO or IZO. Accordingly, in the case where the pixel electrode and the drain electrode are separately formed, Lee does not teach or suggest that the drain electrode can be a transparent conductive material comprising ITO or IZO.

In addition, although Lee may disclose that the pixel electrodes 182, 183 may be of ITO or IZO, this does not constitute a sufficient basis to support the Examiner's hindsight conclusion that "ITO and IZO are interchangeable" for *any* application. This is simply not true. For example, the present application clearly demonstrates that it is significantly advantageous to utilize IZO instead of ITO as part of the drain electrode (see page 12, lines 7-9 and page 23, lines 7-33). Therefore, it is improper to apply the alleged interchangeability of ITO and IZO for pixel

electrode applications, as a general rule that is applicable to *all* situations and applications. This is clearly not the case.

Furthermore, the Examiner alleges that it would have been obvious to modify the protective film made of ITO as disclosed in the background so as to be replaced with IZO "to function as a better transparent conductive oxide as taught by Lee". This allegation is without merit, because nowhere does Lee disclose or suggest that using IZO instead of ITO would result in a better transparent conductive oxide. Therefore, one skilled in the art would not have been motivated to modify the protective film made of ITO so as to be replaced with IZO without any objective reason to do so. It is impermissible to engage in hindsight reconstruction of the claimed invention, using applicants' disclosed structure as a template and selecting elements from references to fill in the gaps. *In re Gorman*, 18 USPQ2d 1885 (Fed. Cir. 1991).

Applicant further points out that although the APA may disclose that ITO is deposited on the drain electrode 126 to form a protective film, the APA fails to teach or suggest that the ITO deposited on the drain electrode 126 is amorphous. Claim 1 clearly requires that the protective film 44 is an amorphous conductive oxide containing indium oxide and zinc oxide. Similarly, Lee also fails to teach or suggest that the ITO or IZO is amorphous. Thus, even the alleged combination fails to meet this feature of claim 1.

According to example embodiments of the present invention, the protective film 44 is an amorphous conductive oxide which comprises, for example, amorphous IZO (see page 23, lines 25-33). In particular, as described in the specification, it is important for the protective film to be amorphous. For example, although the ITO deposited on the drain electrode 126 to form a protective film as described in APA would result in problems such as increase in cost and processes (see page 11, line 30 - page 12, line 9), however, an amorphous ITO would not

possess such problems (see page 31, lines 21-29). Therefore, a significant difference between claim 1 and the cited art is that the protective film of claim 1 comprises an amorphous conductive oxide, such as amorphous IZO. This is not taught or suggested in the cited art.

Claim 10 also recites the "amorphous" feature, and the IZO feature, and defines over the cited art in a similar manner.

If any minor matter remains to be resolved, the Examiner is invited to telephone the undersigned with regard to the same.

Respectfully submitted,

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